

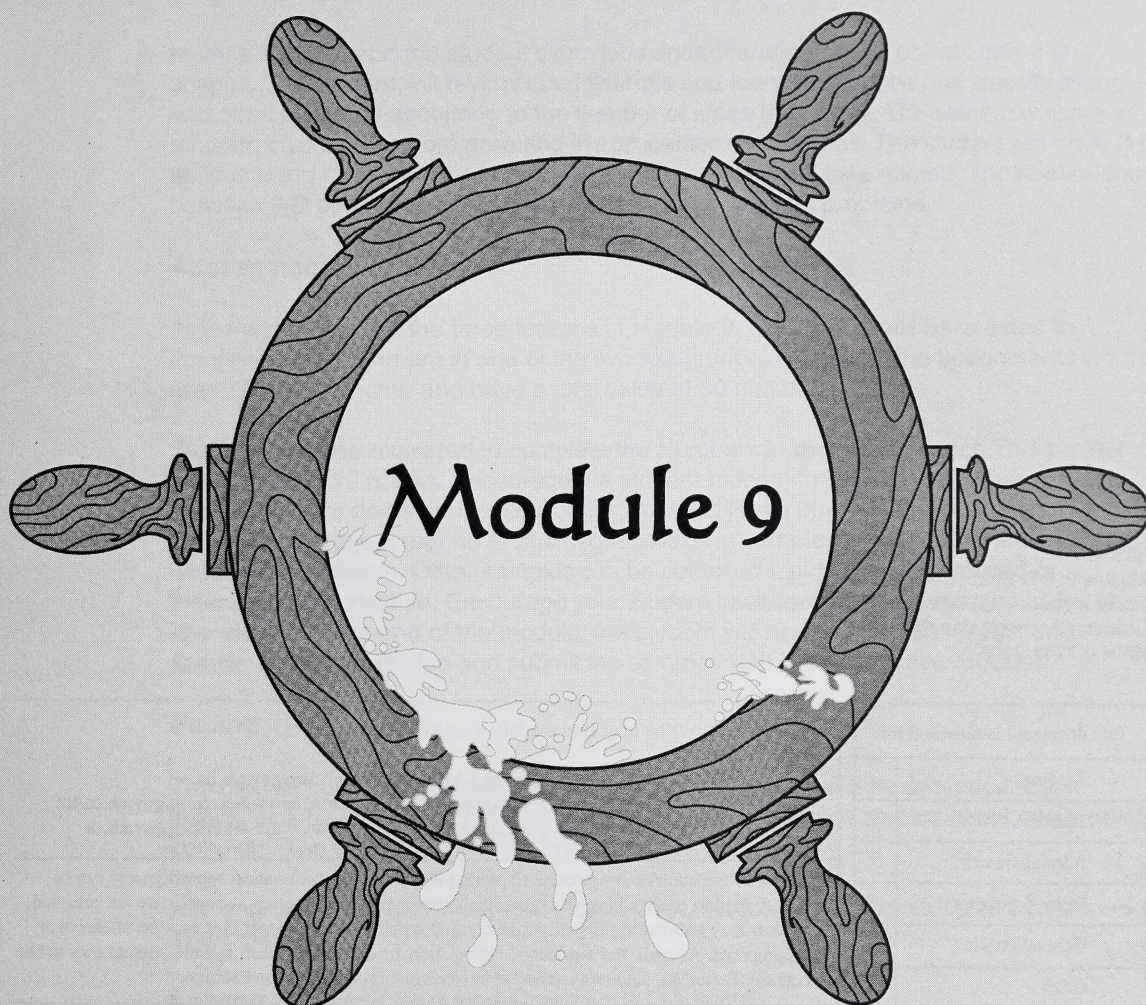
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Mathematics 5



Home Instructor's Guide and Assignment Booklet 9A



Learning
Technologies
Branch

Alberta
LEARNING

Mathematics 5
Module 9: 2-D Shapes and 3-D Objects
Home Instructor's Guide and Assignment Booklet 9A
Learning Technologies Branch
ISBN 0-7741-2105-X

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



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- Alberta Learning, <http://www.learning.gov.ab.ca>
- Learning Technologies Branch, <http://www.learning.gov.ab.ca/lrb>
- Learning Resources Centre, <http://www.lrc.learning.gov.ab.ca>

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Module 9: 2-D Shapes and 3-D Objects

Overview

Module 9 will extend the student's previous understanding of 3-D objects and 2-D shapes. The student will review quadrilaterals and learn to describe and classify triangles and other polygons according to the number of sides they have. The student will use a tangram puzzle to explore area and the properties of polygons. The student will draw 3-D shapes using triangular dot paper. Planes of symmetry will be explored. The relationship between 3-D objects and 2-D shapes will be used to solve problems.

Assessment

At the end of each of the three lessons in Module 9, the student will be directed to complete an assignment in one of the two Assignment Booklets. The assignments will be graded by the teacher and have a total value of 90 marks.

Students are also expected to complete the Numbers in the News project. This project has a value of 10 marks. Encourage the student to look through a newspaper at least once a week for items on the Scavenger Hunt list. Read through the list with your student and suggest that he or she begin collecting samples of the ideas that he or she already understands. Other samples can be collected as ideas are introduced or extended in the module. Encourage your student to collect as many samples as he or she wishes. At the end of the module, the student will need to choose at least one sample for each question and submit the samples with the Assignment Booklet.

Pacing

The module has been designed so that students can work at their own pace. Each lesson, including the lesson assignment, will take the average student about one week to complete. The Challenge Activity in each lesson is optional.

Allowing extra time for review and project work, Module 9 will take students 3 to 4 weeks to complete.

Lesson 1: Identifying and Drawing 2-D Shapes

Overview

In this lesson the student will review quadrilaterals and further explore triangles by building, sorting, and naming them according to the number of sides. The student will identify, describe, and name both irregular and regular polygons.

Special Requirements

You may gather the following materials for your student to use in this lesson:

- about a dozen straws of each of the following lengths: 9 cm, 15 cm, and 20 cm
- about a dozen bendable straws
- scissors
- toothpicks

Sharing Time

Students are asked to discuss what they are learning with their home instructor once in Lesson 1—at the end of Activity 3.

Activity 3 Sharing Time

Practice and Homework Book, page 119

Encourage the student to ask questions such as the following that require a yes or no response and narrow the possibilities.

- Does the polygon have more than three sides?
- Does the polygon have a right angle?

Lesson 2: Tangrams**Overview**

In Lesson 2 the student will review the use of geometric terms. The student will rearrange all or some of the pieces of a tangram to make other shapes.

Special Requirements

You may gather the following materials for your student to use in this lesson:

- sheet of paper
- scissors

Sharing Time

Students are asked to discuss what they are learning with their home instructor once in Lesson 2—at the end of Activity 1.

Activity 1 Sharing Time

Some students have more difficulty than others with visual puzzles. Like any skill, solving tangram puzzles will become easier with practice.

Your student may wish to find other tangram puzzles on the Internet or in books.

ASSIGNMENT BOOKLET 9A

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Module 9: Lesson 1 Assignment and Lesson 2 Assignment

Home Instructor's and Student's Comments:

STUDENT FILE NUMBER
(if label is missing or incorrect)

Date Submitted:

Apply Module Label Here

Name

Address

Postal Code

*Please verify that preprinted label is for
correct course and module.*

FOR SCHOOL USE ONLY

Assigned Teacher:

Date Assignment Received:

Grading:

Teacher's Comments

Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

INSTRUCTIONS FOR SENDING IN THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAILING

1. Postage Regulations

Do **not** enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

1. Assignment Booklets may be faxed. Contact your teacher for the fax number.
2. All faxing costs are the responsibility of the sender.

E-MAILING

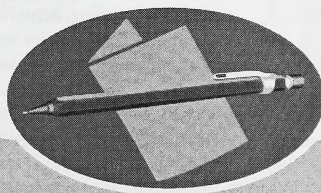
Assignment Booklets may be e-mailed. Contact your teacher for the e-mail address.

Mathematics 5

Module 9

2-D Shapes and 3-D Objects

ASSIGNMENT BOOKLET 9A



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FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 1 Assignment	35	
Lesson 2 Assignment	25	
	60	

Teacher's Comments

Mathematics 5

Module 9: 2-D Shapes and 3-D Objects

Assignment Booklet 9A

Lesson 1 Assignment and Lesson 2 Assignment

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ASSIGNMENT BOOKLET 9A

MATHEMATICS 5—MODULE 9: 2-D SHAPES AND 3-D OBJECTS

Your mark on this module will be determined by how well you do your assignments in the Assignment Booklets.

Work slowly and carefully. If you are having difficulties, go back and review the appropriate lessons.

There are two lesson assignments in this Assignment Booklet. The total value of the lesson assignments is 60 marks. The value of each assignment is stated in the left margin.

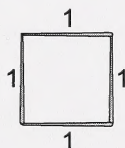
Be sure to proofread each assignment carefully.

35

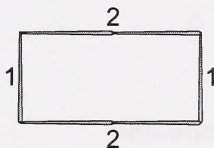
Lesson 1 Assignment: Identifying and Drawing 2-D Shapes

By placing toothpicks end-to-end, you can form quadrilaterals. Following are two examples:

- You can form a square with four toothpicks.



- You can form a rectangle with six toothpicks.



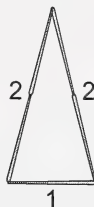
- ⑥ 1. Arrange **eight** toothpicks end-to-end to form the following quadrilaterals. Draw a picture of each quadrilateral and label each side with the number of toothpicks you used.
- a. Parallelogram b. Square
- c. Rhombus d. Rectangle
- e. Trapezoid f. Kite

2. By placing toothpicks end-to-end, you can form triangles.

You can form an equilateral triangle with three toothpicks.



You can form an isosceles triangle with five toothpicks.



Arrange **eight** toothpicks end-to-end to form the following triangles, if possible. Draw a picture of the triangle if it is possible. If you can't make a triangle, use a picture to help you explain. Label each side with the number of toothpicks you used.

②

- a. Equilateral triangle

②

- b. Isosceles triangle

② c. Scalene triangle

3. Arrange **nine** toothpicks end-to-end to form the following triangles.
Draw a picture of each triangle and label each side with the number of toothpicks you used.

② a. Equilateral triangle

② b. Isosceles triangle

② c. Scalene triangle

- ② 4. a. Draw and label a picture of a quadrilateral that has all sides the same length but that is not regular.

- ② b. What is the special name for the quadrilateral you drew in question 4.a.?

- ② 5. a. Draw and label a picture of a quadrilateral that has all angles the same size but that is not regular.

- ② b. What is the special name for the quadrilateral you drew in question 5.a.?

②

6. a. Draw and label a picture of a regular quadrilateral.

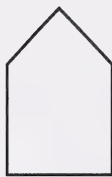
①

b. What is the special name for the quadrilateral you drew in question 6.a.?

7. Name each of the following polygons and explain why it is regular or irregular.

②

a.

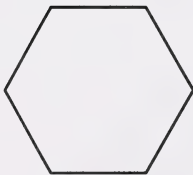


Name: _____

Explanation: _____

②

b.

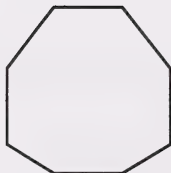


Name: _____

Explanation: _____

②

c.



Name: _____

Explanation: _____

25

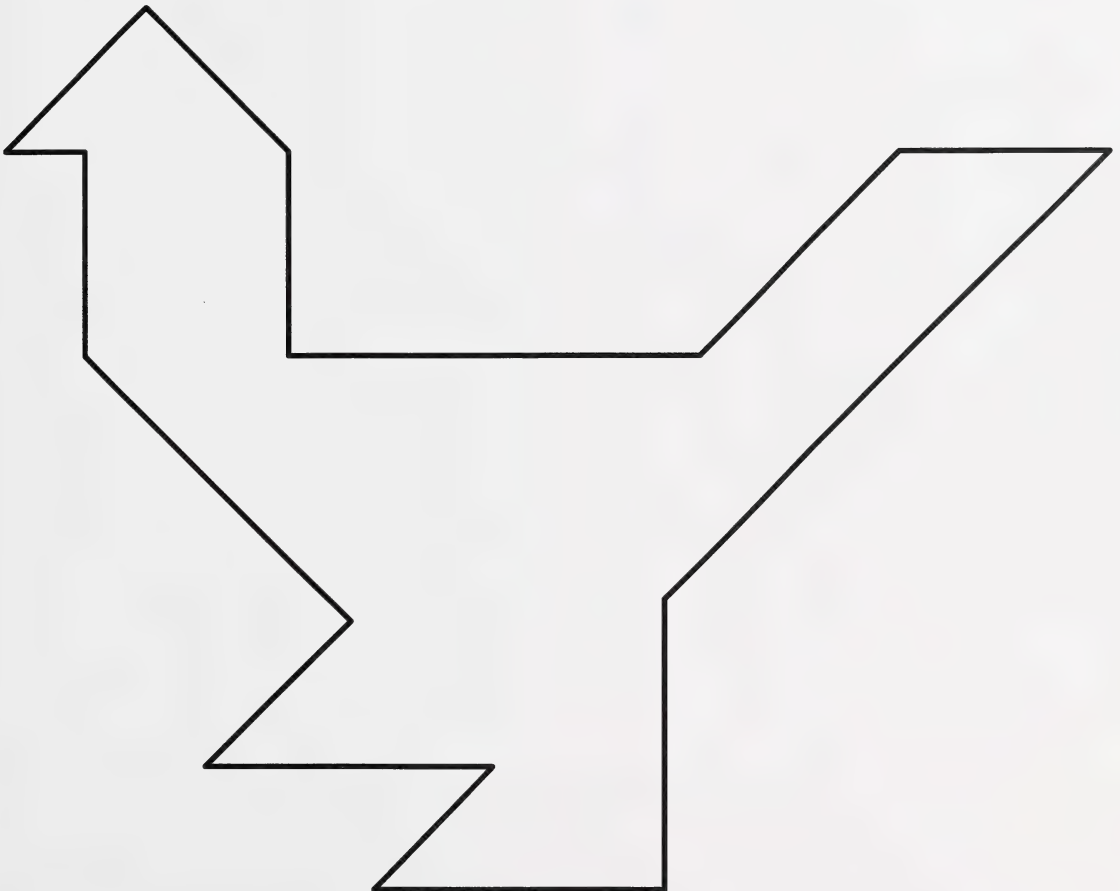
Lesson 2 Assignment: Tangrams

Cut the tangram at the end of this Assignment Booklet into its seven pieces and use it to do the following questions.

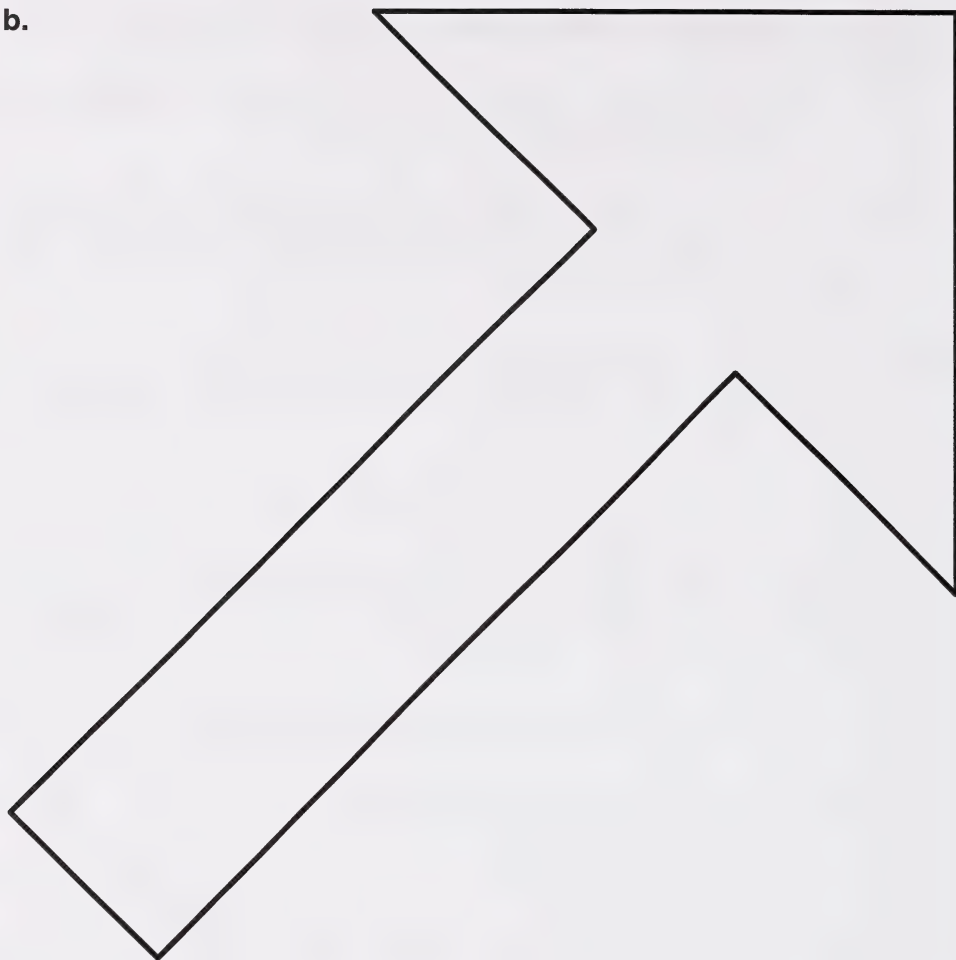
1. Use all seven pieces to cover the following pictures. Show how you arranged your pieces by drawing and labeling them. Tell what the picture represents.

5

a.



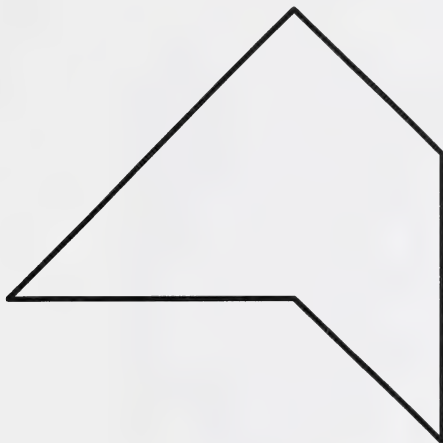
⑤

b.

2. Name each of the following shapes. Then use some of your tangram pieces to cover each shape. Show how you arranged your pieces by drawing and labelling them.

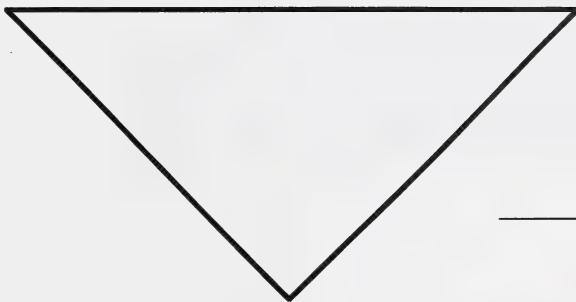
③

a.



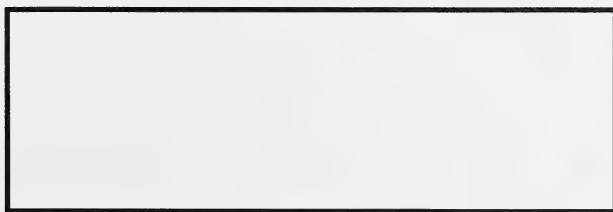
③

b.



③

c.



3

d.



3

e.



Tangram

